REMARKS

Applicants respectfully request reconsideration of the application.

Grounds of Rejection to be Reviewed

Claims 4, 18-24 and 26-28 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 5,960,081 by Vynne et al. ("Vynne").

Claims 4, 18-24 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vynne.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vynne.

Claims 2, 14-15, 20, 22, 29-30 and 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vynne in view of U.S. Patent No. 6,389,421 to Hawkins et al. ("Hawkins").

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vynne in view of U.S. Patent No. 6,473,516 to Kawaguchi et al. ("Kawaguchi").

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,611,830 to Shinoda in view of Vynne.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Vynne and Hawkins in view of U.S. Patent No. 6,374,336 to Peters et al. ("Peters").

Applicants respectfully traverse the rejections. These rejections are traversed for reasons provided previously and for at least the additional reasons provided below.

Claims 4, 18-24 and 26-28 are not anticipated by or unpatentable over Vynne

Claim 4

In addition to the elements highlighted previously, Vynne does not disclose, teach or suggest: "sub-dividing the media signal into segments based on analysis of the media signal to identify parts of media signal having signal characteristics that are more likely to carry a readable watermark signal;" in combination with the other elements of claim 1. Vynne teaches a video format in which video is represented in blocks as a result of MPEG compression. Vynne's watermarking technique is applied after the video is in block format as a result of these MPEG compression operations. Vynne adjusts the motion vector of a block to embed the watermark, and the motion vector for the block is previously computed as part of the MPEG coding process. Therefore, Vynne's watermarking method has no ability to modify the manner in which the

blocks are subdivided because any modification would conflict with the MPEG coding process. As such, Vynne's method strongly teaches away from the claimed method.

Claims 18-19

Regarding claim 18, Vynne fails to disclose, teach or suggest: "performing parallel digital watermark operations on the segments in the parallel processors wherein the media signal is segmented based on probability of watermark detection and prioritized for parallel watermark decoding operations based on probability of watermark detection" in combination with the other elements of claim 18. As noted above, the video is in a block format as a result of MPEG compression. Therefore, it teaches away from "the media signal is segmented based on probability of watermark detection" as claimed in combination with the other elements of claim 18.

Claim 19 is patentable over Vynne for at least the same reasons as claim 18.

Claim 20

The arguments provided previously are still valid. Vynne specifically states that: "Only one program exists, which is executed on all processors at the same time." Col. 26, lines 42-44. While different processors in Vynne may embed different data and a processor may have more or less blocks, it does not follow that Vynne teaches the elements of claim 20.

The Examiner notes that Vynne states that certain variables "are used to make the execution different on the different processors." Col. 26, lines 45-47. Vynne's different execution does not correspond to the claimed different watermark functions that are specifically recited as being performed in parallel by specific elements including the watermark generator and the perceptual analyzer as recited in amended claim 20.

As amended, claim 20 further recites: "the watermark generator generates the signal to be embedded for a first segment on a first processor, and the perceptual analyzer generates the signal dependent parameters for the first segment on a second processor." In contrast, Vynne teaches a method in which all watermarking operations for a block are carried out on a single processor to which that block is assigned.

Claim 22 is patentable for the same reasons as claim 20.

Claim 21

When construed in combination with claim 20, claim 21 recites that different watermark functions performed by modules comprising a watermark generator, a perceptual analyzer and watermark applicator are performed on the media signal in parallel. In contrast, Vynne teaches that the same program is executed on all processors at the same time. See Col. 26, lines 42-44.

Claims 23-24 and 26-28

Vynne's thresholds are not dependent on and automatically computed from the content of the media signal as recited in amended claim 23 in combination with the other elements. Therefore, they do not constitute a perceptual mask. Instead, Vynne teaches that the thresholds are derived manually and a common set of thresholds is derived that is used for different videos. As such, the thresholds are not dependent on a particular video and computed automatically from that video.

Applicants representative acknowledges that Vynne's thresholds are adjustable using DirectView. But these adjustments are made manually based on the user's subjective analysis of the effect of the threshold on the quality of the watermarked video as viewed through DirectView. Vynne's thresholds are clearly not automatically computed from the content of the media signal, but instead manually set by the user as a result of a subjective analysis of the watermarked video created by applying the threshold.

Claim 23 is further amended to recite: "the perceptual mask specifying areas of the media signal and is used to control embedding of the watermark in the areas." Vynne's thresholds do not specify areas of the watermark signal as claimed. In contrast, Vynne applies the same threshold irrespective of the area in which the watermark is embedded.

Claims 24 and 26-28 are patentable for at least the same reasons as claim 23.

Clam 2 is not obvious in view of Vynne

Claim 2

Vynne does not distribute "the specified parts to parallel processors after the specifying the locations of the parts to be embedded with corresponding digital watermark messages" as recited in claim 2 in combination with the other claim elements. As described in the cited

passage at col. 27, lines 6-19, Vynne distributes all of the blocks in the image to the processors. In equation 7.1, the numerator is m_b, the number of blocks in the image, and the denominator is NPES, the number of processors. It is not the suitable blocks that are divided among the processors, but instead, all of the blocks in the image. Only after distributing all of the blocks, each processor selects "suitable" blocks for watermarking or not.

Claims 2, 14-15, 20, 22, 29-30 and 32-33 are patentable over Hawkins

Regarding claim 2, the combined teachings of Vynne and Hawkins do not suggest: "distributing the specified parts to parallel processors after the specifying of the locations of the parts to be embedded with corresponding digital watermark messages" in combination with the other elements of claim 2.

The Office contends that "A task associated with points is a block of signal." In Hawkins, "points" are a unit for a processing resource to be assigned to a processing task. There is no suggestion of associating such units of processing resources to a block of a signal.

Regarding claim 14, the combined teachings of Vynne and Hawkins fail to teach or suggest: "the media object is segmented into blocks based on a memory parameter of processing hardware and the parallel digital watermarking operations are performed in priority order on the blocks based on an analysis of signal characteristics of the blocks" as recited in combination with the other elements of claim 14.

Regarding claim 20, Hawkins fails to provide the missing teachings from Vynne as explained above. Thus, even when combined, these references fail to teach all of the elements of claim 20.

Regarding claim 29, the combined teachings of Vynne and Hawkins fail to teach or suggest: "a media signal pre-processor operable to receive a media signal and divide the media signal into segments for parallel watermark embedding operations based on an analysis of signal characteristics of the media signal for suitability of watermark embedding" as recited in combination with the other elements of claim 29.

Claims 17 and 34 remain patentable for the reasons provided previously.

Claim 16 is patentable over the cited combination for at least the reasons provided for claim 14 because the addition of Peters does not teach all of the elements of claim 16, which is dependent on claim 14.

Claim 34 is patentable over Shinoda in view of Vynne as argued previously. Shinoda only teaches embedding one image at a time. Therefore, it does not teach any of the elements relating to batch processing, such as "the requests including a list of media signal files and information to be linked with the media signal files," and "a batch registration extractor for reading the registration database and creating an embedder control file, including identifiers, a corresponding list of media signal files, and embedding instructions for controlling embedding of the identifiers in the media signal files" [emphasis on elements dealing with batch embedding on a list of media signal files added]. Vynne does not teach any of these elements either, therefore, the combination fails to teach all of the elements of claim 34.

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Respectfully submitted,

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